APPENDIX K

CHAIN-OF-CUSTODY FORMS AND DATA VALIDATION REPORTS RELATING TO THE SEDIMENT SAMPLE COLLECTED FROM LOWER ARROW LAKE DURING THE ECOLOGY 2001 SAMPLING EVENT

Project Name: FDR Sediment Toxicity 50:50

PIC: D3100/D31PF **Program:** EAP

Send Results to: Dave Serdar **Mail Stop:** 47710

Laboratory Analyses Required

150301

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X Preliminary Investigation ☐ Monitoring ☐ For NW Designation ☐ For NPDES

Date Results needed by: Bioassay by June 30,

X There is a QAPP for this project

Sampling Date Year: 2001 Mo / Da	Time Hr / Mn	Field Station Identification	Lab Sample Number	Matrix Code	Source Code	No. of Containers	General Chemistry	Micro	Metals	Organic Chemistry
05/07	20:45	LOWER AIRPORT	198040	40	42	6	X X	X X X	X X	
05/08	12:00	GOODIEVE CR	198041			6	X X			
05/08	13:45	AUXILIARY	198042			6	X			
05/08	14:55	BOUNDARY	198043			6	X			
05/08	18:15	KETTLE R	198044			6	X			
05/08	20:50	SAN PO IL, R	198045			6	X			
05/09	12:30	CASTLERICK	198046			6	X			
05/09	15:00	WHITESTN	198047			6	X			
05/09	15:00	WHITESTNR	198048			3	X			
05/09	17:00	SWAMILLA	198049			6	X			
0509	18:30	GR COULEE	198050	↓	↓	6	X X	X X X	↓ ↓	

Project Officer: Dave Serdar

Phone number: 407-6772

Samplers: Dave Serdar, Randy Coats, Brandee Era

Recorder: Brandee Era

Date: 5/10/01

Chain of Custody Record

Relinquished By:	Received By:	Yr	Mo	Da	Hr	Mn	Seal I.D.	Condition of Seals	Comments
Brandee Era	HQ	01	05	10	02	00	5 coolers	NJ good-old seals	
CoC WALK-IN	Will White	01	05	10	07	00		SEALS INTACT. NO SEAL I.D. #'S	
Will White		01	05	10	09	00			

Comments:

ECY 040-111 Rev. 4/96

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard, Washington 98366

Case Narrative

August 7, 2002

Subject: Metals Quality Assurance Memo for FDR Sediment Toxicity Study

Officer: Dave Serdar

By: Dean Momohara DM

Summary

The data generated by the analysis of these samples can be used with the qualifications noted in this memo. The samples were analyzed on 07/09/01. The results are from analytes simultaneously analyzed but not requested by the client at that time. In some cases, adequate quality control samples (QC) were not analyzed and/or QC results did not meet validation. These results should be treated accordingly.

All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

Samples were received by Manchester Environmental Laboratory on 05/10/01 in good condition.

Holding Times

All analyses were performed within established EPA holding times.

Calibration

Instrument calibrations and calibration checks were performed in accordance with the appropriate method. All calibration checks were within control limits. Balances are professionally calibrated yearly and calibrated in-house daily.

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inductively Coupled Plasma

Project Name: FDR Sediment Toxicity
LIMS Project ID: 1503-01

Sample: 0119804O (matrix spike - LMR2)
Date Collected: 05/07/01
Method: SW6010

Field ID: LOWERARRO
Date Prepared: 05/22/01
Matrix: Sediment/Soil

Project Officer: Dave Serdar
Date Analyzed: 07/09/01
Units: % Recovery

Analyte	Result	Qualifier
Arsenic	**104**	
Cadmium	**104**	
Copper	**104**	
Lead	**98**	
Zinc	**98**	
Barium	**100**	
Cobalt	**101**	
Manganese	**100**	
Nickel	**95**	
Selenium	**102**	
Thallium	**108**	
Vanadium	**102**	
Silver		NAF
Beryllium	**121**	
Chromium	**100**	
Iron		NC
Potassium		NAF
Magnesium		NAF
Antimony		NAF
Tin		NAF

Authorized By: Randy L Knox Release Date: 7/29/02

Method Blanks

No analytically significant levels of analyte were detected in the method blanks associated with these samples.

Matrix Spikes

The matrix spike recoveries for iron were not calculated due to the native source concentration being significantly higher than the spike. The data was qualified as an estimate.

Spikes were not analyzed for potassium, magnesium, silver, antimony and tin analyses. The data associated with these analytes were qualified as estimates. All other matrix spike recoveries were within the acceptance limits of $\pm$ 25%.

Replicates

All duplicate relative percent differences of samples with concentrations greater than 5 times the reporting limit were within acceptance limits of less than 20%.

Laboratory Control Samples

The iron, chromium and antimony laboratory control sample recoveries were beyond control limits. The data associated with these analytes were qualified as estimates. All other laboratory control sample recoveries were within acceptance limits.

Other Quality Assurance Measures and Issues

The beryllium initial calibration verification result was beyond the control limit. The data associated with this analyte was qualified as an estimate.

U - The analyte was not detected at or above the reported result.

J - The analyte was positively identified. The associated numerical result is an estimate.

UJ - The analyte was not detected at or above the reported estimated result.

NAF - Not analyzed for.

NC - Not Calculated

bold - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inductively Coupled Plasma

Project Name: FDR Sediment Toxicity
LIMS Project ID: 1503-01

Sample: 01198040
Date Collected: 05/07/01
Method: SW6010

Field ID: LOWERARRO
Date Prepared: 05/22/01
Matrix: Sediment/Soil

Project Officer: Dave Serdar
Date Analyzed: 07/09/01
Units: mg/Kg dw

Analyte	Result	Qualifier
Arsenic	2	U
Cadmium	**0.47**	
Copper	**3.5**	
Lead	**11**	
Zinc	**26.9**	
Barium	**27.2**	
Cobalt	**2.1**	
Manganese	**47.0**	
Nickel	**13.4**	
Selenium	5	U
Thallium	5	U
Vanadium	**5.93**	
Silver	0.5	UJ
Beryllium	0.5	UJ
Chromium	**12.0**	**J**
Iron	**3650**	**J**
Potassium	**447**	**J**
Magnesium	**1690**	**J**
Antimony	4	UJ
Tin	5	UJ

Authorized By: Randy L Knox Release Date: 7/29/02

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inductively Coupled Plasma

Project Name: FDR Sediment Toxicity | **LIMS Project ID:** 1503-01

Sample: 0119804[illegible] (Duplicate - LDP1) | **Date Collected:** 05/07/01 | **Method:** SW6010

Field ID: LOWERARRO | **Date Prepared:** 05/22/01 | **Matrix:** Sediment/Soil

Project Officer: Dave Serdar | **Date Analyzed:** 07/09/01 | **Units:** mg/Kg dw

Analyte	Result	Qualifier
Arsenic	2	U
Cadmium	**0.44**	
Copper	**3.6**	
Lead	**12**	
Zinc	**26.8**	
Barium	**26.8**	
Cobalt	**1.8**	
Manganese	**45.2**	
Nickel	**11.5**	
Selenium	5	U
Thallium	5	U
Vanadium	**5.58**	
Silver	0.5	UJ
Beryllium	**0.5**	**UJ**
Chromium	**11.8**	**J**
Iron	**3490**	**J**
Potassium	**446**	**J**
Magnesium	**1400**	**J**
Antimony	4	UJ
Tin	5	UJ

Authorized By: Randy Knox Release Date: 7/29/02

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inductively Coupled Plasma

Project Name: FDR Sediment Toxicity **LIMS Project ID:** 1503-01

Sample: 0198040 (matrix spike - LMX1) **Date Collected:** 05/07/01 **Method:** SW6010
Field ID: LOWERARRO **Date Prepared:** 05/22/01 **Matrix:** Sediment/Soil
Project Officer: Dave Serdar **Date Analyzed:** 07/09/01 **Units:** % Recovery

Analyte	Result	Qualifier
Arsenic	**104**	
Cadmium	**104**	
Copper	**103**	
Lead	**98**	
Zinc	**97**	
Barium	**99**	
Cobalt	**100**	
Manganese	**98**	
Nickel	**96**	
Selenium	**102**	
Thallium	**107**	
Vanadium	**101**	
Silver		NAF
Beryllium	**120**	
Chromium	**98**	
Iron		NC
Potassium		NAF
Magnesium		NAF
Antimony		NAF
Tin		NAF

Authorized By: Randy L Knox Release Date: 7/29/02